COTTON CHATS

FROM

DRAPER COMPANY

SHIPMAN'S
COMMON-SENSE BINDER

PATENTED

JANUARY 19, 1892. APRIL 19, 1904

To open binder, remove the slides from fasteners raise the fasteners to an erect position and then file papers. For punching: lay the papers on covers and mark sheets to correspond with fasteners.

If DUPLICATE is wanted ORDER 25981

ASA L. SHIPMAN'S SONS
MANUFACTURERS,
NEW YORK.

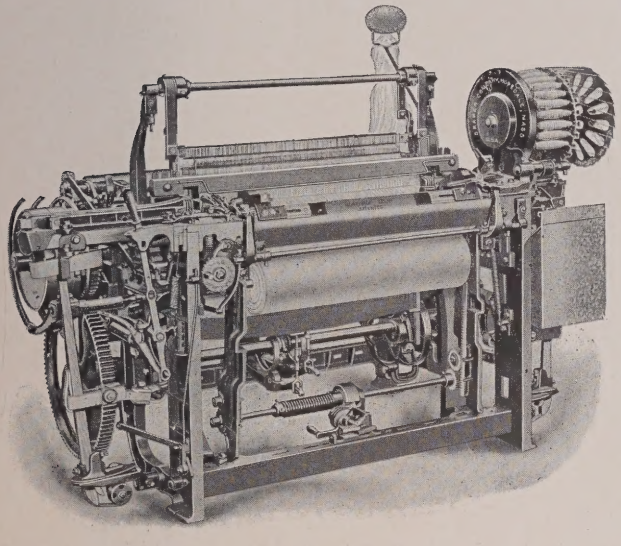
COTTON CHATS

By the secretary of the

DRAPER COMPANY,

HOPEDALE, MASS.

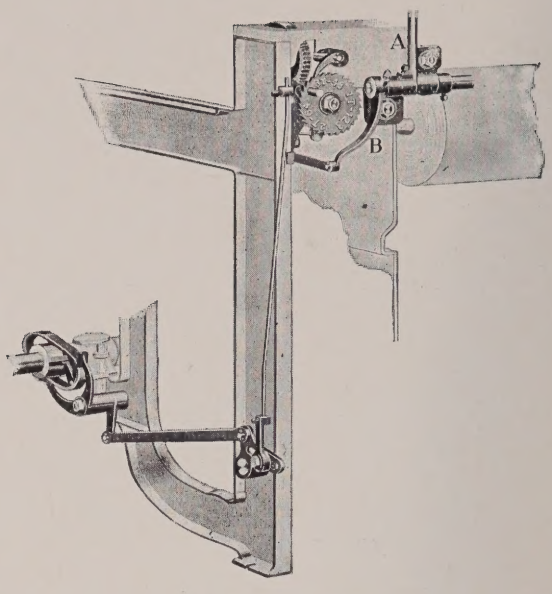
No. 19. SEPTEMBER, 1903.



OUR J MODEL LOOM.

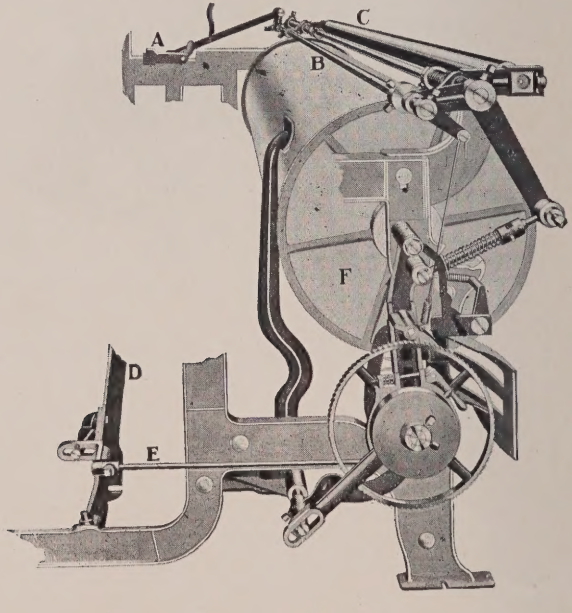
In our January Cotton Chats we announced the coming of a new light model loom. The loom is now illustrated for the first time, although it has been on the market several months, orders having been already filled from this pattern. In the usual custom of building looms in anticipation for unusual emergencies parts have to be designed and arranged without favoring any one special use. We believe there is enough demand for a strictly two-harness loom for light goods to warrant a special model.

Light goods demand freedom from thick and thin places. Automatic looms require special attention in this direction, although the common loom is sufficiently sinning in this respect. We have perfected a system of double forks and take-up that seems to absolutely prevent faults of this nature. The take-up does not let-back to avoid thin places —in fact, the letting-back idea is never positive, as it depends upon the tension of the warp and the free turning of the bearings of the take-up. We **prevent the take-up from working** if filling is not laid and ensure prompt detection by use of two forks.



J MODEL TAKE-UP.

Another new feature is the new take-up itself which is of simple design, as will be seen by the cut. It is operated by a cam on the lower loom shaft and so timed that it will not take up unless the shuttle is picked. Ordinary take-ups will act if the lay is moved by hand without filling being laid. The ratchet shaft operates through a worm to the take-up roll—no chance for back lash of gears. A is the upright connecting to the left-hand fork and B the lever connecting to the arresting device.



The Let-Off is the latest improved Draper-Roper, now our universal standard. It regulates from the size of the warp-beam and requires no adjustment from full to empty beam. It weaves with a more uniform tension than any

let-off we have ever introduced—and we were the pioneers in this field.

Note in the cut of the let-off another new idea which we call the Anti-Bang. The frog slide connects to the whip roll so as to release the warp in case the loom bangs off. This relieves the loom itself from shock and also prevents smashes.

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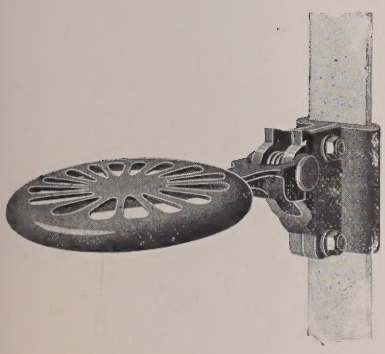

FIG. 1.

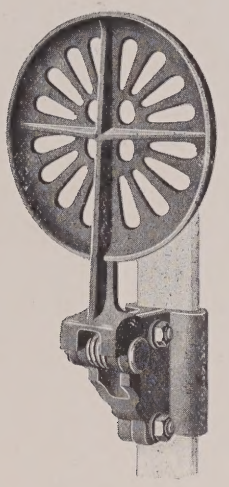

FIG. 2.

THE BOLTON LOOM-SEAT.

This novel attachment is applied to any of our looms and provides a seat for the operative that is normally held out of the way by a spring. Of course it is not necessary to provide them for each loom.

Fig. 1 shows the seat as held down by the weaver's weight. Fig. 2 shows it returned to position under control of its spring.

Mr. T. H. Rennie, Superintendent of the Graniteville Mfg. Co., wrote us he considered these seats an "*Indispensable adjunct to a well regulated weave-room.*"

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INTERESTING FIGURES.

In the paper presented by General Draper at the Southern Cotton Spinners' Association, Charlotte, N. C., May 14, 1903, some pertinent facts were related regarding the value of the spindle inventions introduced by our company and its predecessors. A brief quotation is hereby given:

As a basis I will say that five thousand turns per minute is taken as the speed of spindles before we commenced our improvements, and that nine thousand is taken as the speed at which the yielding bearing spin-

dles are now run, as limited by a ring and traveler, and the rest of the machine. The spindles themselves would bear much higher speed if their capacity were not limited as above stated, by conditions outside of themselves, while with the old spindle the speed that it would bear was the limit of production.

Further, I assume that the production of the machine is in proportion to the speed of the spindle, an assumption against the yielding bearing spindles, as they run more steadily, even at the higher speed. I also assume that the cost of spinning frames, with the floor room required to hold them, and the shafting, heating, lighting and belting necessary, is not less than four dollars per spindle. On this basis the 20,000,000 spindles that we have sold are doing the work that would require 36,000,000 of the old spindles, making a saving in machinery and room alone, of $64,000,000 by these inventions. The gross royalties that we have collected are but a small fraction of this sum, and the net royalties a still smaller fraction. The rest of the gain has gone to the manufacturer or the community, principally to the latter, as I will explain.

Further, owing to the smaller bearings and lighter running of the new spindles the old spindle at its speed consumed as much power as the improved forms at the higher speed, and the power that would be required to drive 16,000,000 spindles is therefore saved. This, at 100 spindles to the horse-power, a common estimate, means the saving of 160,000 horse-power, which is more than the water power of a dozen Lowells, and probably equal to all the water power used by all the cotton mills in the country.

Still further, owing to the steadiness of running of these spindles and the consequent smaller breakage of ends, they require no more labor cost for attendance at their speed than the common spindles at the lower rate. The labor cost of attending 16,000,000 common spindles is, therefore, continuously saved, and this is the largest item of all. It is evident that if the annual savings of power and labor were added to the saving of machinery these rapidly running spindles have produced a clear economy of hundreds of millions of dollars for the country, and they are still continuing their beneficent work. Besides this, they have gone into use abroad and are now substantially the only type built there as well as here.

WHO HAS RECEIVED THE BENEFIT OF THE SAVING?

As before stated, the inventors and introducers have received but a small fraction of it. The manufacturers who introduced the improved spindles early, while the price of goods was governed by the cost of making the yarn with the old spindles, made a handsome profit. Later, when the improvements became generally introduced and mills having the old spindles were unable to compete, the profit went, and still goes, to the consumer, the mass of the people, in the lower price of cotton fabrics. The trade in general gains by the larger production brought about by these lower prices, but if they wish special gains from improved machinery they must look for something not yet thoroughly introduced, the Northrop loom, for example.

As Lord Bacon said, "The benefits of new inventions extend to all mankind universally, but the good of political achievements respect but some particular cantons of men. These latter do not endure above a few ages; the former forever."

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COTTON CHATS

By the Secretary of the

DRAPER COMPANY,

HOPEDALE, MASS.

No. 20. OCTOBER, 1903.

THE LAST HOPE.

The defenders of common loom weaving have quite recently decided to make a last stand against the successful inroad of the Northrop loom by reorganizing their system of operating the common loom. Although power loom weaving is over a century old, it has suddenly been discovered that the former method of operation was all wrong, and that the real way to get the full benefit of this now antiquated structure, is to add on a warp-stop-motion, reduce the speed, use a larger bobbin in the same length of shuttle, and expect the weaver to run more looms at a less price per cut for product. It seems very strange that if there is any real gain in this method, its principles have not been put in practice before. Warp-stop-motions could have been perfected earlier had there been a demand. Lower speed has certain advantages, and also certain disadvantages. The use of larger bobbins in a shuttle properly designed for smaller ones cannot be considered as necessarily advisable, except that, of course, the loom will run longer between changes of filling, providing the added bobbin length and diameter does not cause the filling to break more frequently. Of course, a weaver can be given more looms at any time. The question simply is, **can he or she keep up the normal product?**

Warp-stop-motions are necessary in automatic looms, and also advisable for goods where a warp break makes a noticeable blemish; but it is questionable as to whether they assist common loom weaving on plain goods sufficiently to pay for the cost of their application. The expense of applying warp-stop-motions, even in the cheaper and less satisfactory styles, is quite a percentage of the total loom value. The warp-stop-motion does not decrease the weaver's work, except in lessening the necessity for pickouts. Any thread that breaks has to be pieced up, as formerly, and

each thread must be pieced up individually, instead of letting the loom run until several breaks have occurred, while many of these warp-stop-motion devices stop the loom frequently without breakage of the warp at all, thus annoying the weaver and increasing the attention necessary. The lower speed is of advantage as affecting the product, only as it may decrease the percentage of warp breaks per cut, and the necessity for loom fixing and repairs. It otherwise does not assist in the production of more cloth per weaver.

The use of the longer bobbin necessitates more or less expense in the spinning room. The longer traverse on the frame certainly does not tend to decrease the cost of operation, for there will be more breakage and more ends to be pieced up. To offset this there is a slight gain in doffing. We know by continued test and careful records that the longer bobbin will cause more filling breakage in the shuttle. On this point there is no possible question. An increase of traverse from 5 1-2 to 6 1-2 inches would of itself allow the weaver 18 per cent. more time for changing filling if there were no additional filling breaks, but **by no manner of reasoning can such a gain allow a weaver to jump from eight looms to twelve.** If weavers can run twelve looms under these conditions it simply proves that they could have run more common looms without these changes, and we are perfectly safe in assuming that a weaver who could run twelve looms so equipped, could run at least thirty Northrop looms on the same goods, as a comparison of the operations necessary will show. Taking fifty changes of filling per day, including replacements and filling breakage—and we believe this to be a favorable estimate for the large bobbin—and fifteen warp breaks per day, means 65 stops per loom per day. With twelve looms this would mean 780 stops daily. There are no filling stops with the Northrop plain loom save for double misthreads or exhaustion of the hopper, and one per day would more than cover this. Adding fifteen warp breaks makes sixteen stops per loom per day and for thirty looms 480 stops, as compared to 780 with twelve common looms as altered over. The fact is that while there are many mills where weavers on our looms run twenty-four and more, the possibilities are far from being exhausted; in fact, we believe the 40-loom weaver is a coming possibility, as the loom is perfected, and perhaps the 50-loom weaver, with assistance of cheap help to aid in the supply of filling.

The owner of common looms may wish to postpone the inevitable day of replacement, yet he should consider

the apparent folly of additional and unnecessary expense incurred in the task. It recalls to mind the situation when the Sawyer and Rabbeth spindles introduced higher speeds. Some owners of common spindles, in trying to keep up with the Sawyer, ran them at higher speed in the vain attempt to adapt them to work for which they were not fitted. This simply wore them out sooner, and greatly increased the percentage of breakages. A trial has convinced the entire community that such competition was useless, for they have gracefully accepted the inevitable; and thus it will be with the present attempt. It is useless to compete with a loom that more than halves the cost of weaving by an abortive attempt to lessen the cost a trifle, especially by a system **which involves a counteracting expense.**

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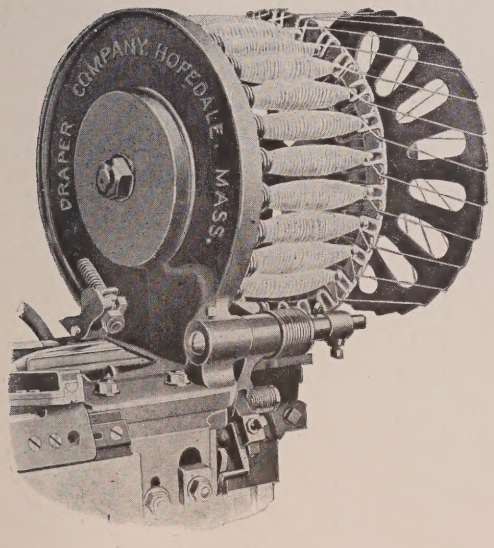
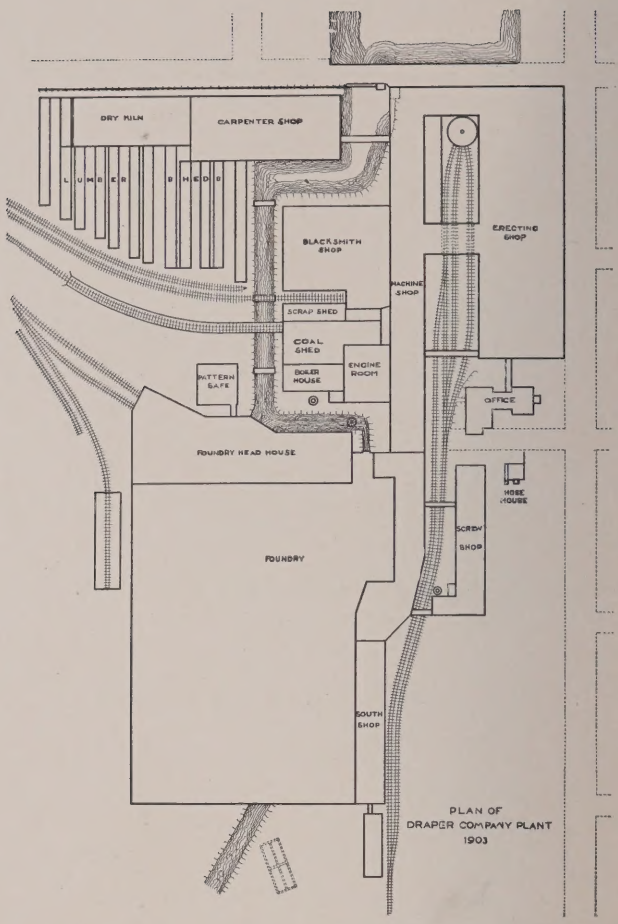


OUR LATEST HOPPER==NO. 7.

In our most recent construction the former sheet steel springs that held the end of the bobbin or cop-skewer are replaced by castings controlled by spiral springs, the same being designed to take either bobbins or cop-skewers without change. The support for the lower bobbin is of the new model which we have already referred to, cushioned by the leather washers against breakage.

This constant change of design, with corresponding change of patterns, moulding-machines, jigs and tools, is always expensive and more or less annoying to the builder. We are primarily interested in the user, however, as the satisfaction of the buyer promotes future sales.



DRAPER COMPANY PLANT.

The above illustration shows the layout of our works to date of Sept. 1st, 1903, giving all of the recent changes. By comparing with a similar plan printed in 1901, it is shown that the increase is mainly in the foundry, which now covers nearly six acres on the ground floor alone, making it one of the largest single departments of its kind in New England. Our carpenter shop, while not shown changed in the plan, has been carried up three more stories. Considerable increase is evident in the lumber sheds, and an addition also made to the office.

The scale of the drawings is 315 feet to the inch. The buildings on the right of the stream are all connected, being practically one, and measure over a quarter of a mile in length. The entire floor space occupied is about 25 acres. The present foundry capacity is ample to supply a much larger machine and erecting shop. The recent changes involved the abandonment of a former river channel and the re-location of a railroad.